REMARKS/ARGUMENTS

Reconsideration is requested of all rejections based on 35 U.S.C. 103:

Examiner is thanked for his thoughtful response to our previous arguments. He has raised two issues to which we need to respond. These are:

(1) Why do we assert that adding a post anneal step to Kraft's process would be counter-productive, and

(2) Examiner's argument that Kraft teaches performing a post nitridation anneal in a nitrogen-oxygen atmosphere. More specifically, Examiner asserts that Kraft performs his plasma nitridation step in an atmosphere of nitrogen and oxygen and then, after the plasma has been turned off, proceeds with an anneal step in the same chamber without changing its atmosphere.

Response to issue (1):

It is clear from Kraft's claims as well as his FIGs. 4a and 4b that a post nitridation anneal is not necessary for his invention to work. As Examiner has pointed out, Kraft does make note that a post nitridation anneal may optionally be added to his process for purposes of fine tuning nitrogen concentration and/or penetration in the oxide. However, adding an anneal step to a process that is known to be capable of successful operation without the addition of such a step is counter-productive because it increases both the total processing time as well as the thermal budget.

Response to issue (2):

(a) Examiner's argument that Kraft anneals in the same atmosphere and chamber as that which was used during the plasma nitridation step appears to us to be speculation on Examiner's part. We therefore respectfully request that Examiner provide us with the appropriate col/line reference on which he bases this assertion.

(b) Examiner has cited col. 4 lines 12-29 of Kraft as teaching the composition of the plasma that he uses. In actual fact. what Kraft teaches there relates to the composition of his nitrided silicon oxide layer. Nothing is said there about the composition of the plasma.

(c) Kraft does disclose the composition of his plasma in col. 3 lines 59-63. He states there "... a plasma which is incorporated with a nitrogen-containing substance, preferably the nitrogen containing substance is either N2, NH3, NO2, N2O2, or a mixture thereof...'. As Examiner certainly knows, the gas with which the nitrogen containing substance is incorporated would be an inert gas such as helium or argon (whose presence facilitates achieving the optimum pressure for plasma operation).

So, even if it could be shown that Kraft teaches to anneal in the same atmosphere that he used for his plasma, said atmosphere would not include any oxygen. It would, however, include an inert gas, which fact teaches away from the present invention. We also note here that although some oxygen may be present in the plasma due to the dissociation of NO2 or N2O2, it would be long gone by the time an anneal was initiated (total gas flow is 1 to 100 sccm).

(d) Even if it could be shown that Kraft teaches annealing in a nitrogen-oxygen atmosphere, it would still need to be shown that the annealing conditions specified in

the present invention are taught by Kraft. Said annealing conditions are "at between about 1,000 and 1,100 °C at a pressure between about 5 and 15 torr, for between about 60 and 150 minutes". These are very narrow ranges, particularly those for temperature and pressure, because they are critical for the present invention to work properly.

In view of the above arguments, applicant respectfully requests that a timely Notice of Allowance be issued in this case.

Respectfully submitted,

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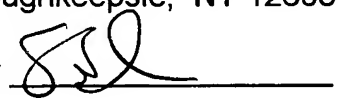
By 

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